this effect. The discovery of quebracho, and the difference in the standard of wages between the United States and South America, led to an ever-increasing use of the South American product and the neglect of our own resources. Whether or not the current increase in price will make it economical to utilize native materials, it is at least of interest to survey them and to see what they have to offer. It should be mentioned that there are other foreign sources of tannin now being exploited, but that together they occupy a secondary position to quebracho. Three of these are wattle extract from Africa, sumac from Italy, and eucalyptus from Australia.

The leaves and bark of a great many kinds of woody plants, both native and foreign, contain tannins; in addition, the heartwood of some of them also yields these materials. The important questions, other than those relating to labor, are: How high a percentage of tannin will the plant yield? How numerous and how large are the plants themselves? Are they readily accessible?

At the present time, about 90 percent of the tannin actually produced in this country comes from native chestnut wood, with the remainder derived from oak and hemlock barks (Bandekow, R. J. *J. For.*, 1947, **45**, 729–34). Thousands of chestnut trees were killed by the blight introduced from Asia about 1906. When these standing dead trees have been cut, there will presumably be no others to take their place, since the disease has practically wiped out this valuable species. The tannin content of the heartwood is not particularly high (5–10 percent), but it is economical to extract it because the chips can then be used for pulp. Bandekow lists a considerable number of native woody plants, together with the tannin content of their bark or wood, and selects several which seem to show special promise.

The sumacs are ubiquitous shrubs or small trees, growing as "weeds" even on poor soils, and are characterized by their milky sap and compound leaves, which, at least in the North, turn a brilliant red in autumn. The dried leaves and stems contain from 25 to nearly 30 percent tannin.

Considerable experimental work has been done on the canaigre plant, native to northern Mexico and our Southwestern states. A valuable tannin extract can be made from it, and, furthermore, the plant can be grown and harvested annually.

The bark of the giant Sitka spruce of the Pacific Northwest contains 12–25 percent tannin, and, since the bark is a waste product, extraction of its tannin may prove economical.

Western hemlock bark appears to be available in sufficient quantities to make tannin production worth while, but the same cannot be said for the Eastern hemlock on account of the relative scarcity of large trees. Among the Eastern oaks, only the chestnut oak, a relatively rare tree, produces tannin extracts of outstanding excellence. The other oaks yield material of less than top quality.

A great many other native plants will yield tannin, including the tanoak tree and bitterbrush shrub of the West and the mangrove of tropical Florida, but the present supply of such plants would need to be increased greatly to mitigate the present tannin shortage.

The waste liquor from the spruce wood sulfite-pulping process contains several substances of value in tanning, but prices have been prohibitive.

It can be said, therefore, that research or investigation is needed in learning how to add to the present supply of tannin, and particularly in producing high-grade materials more cheaply.

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THE AAAS ENTERS ITS SECOND CENTURY

IN STATEMENTS on this page, the President and the President Elect of the American Association for the Advancement of Science emphasize the coordination and integration of science that has become a most necessary and effective function of our organization.

As Retiring President of the Association, I venture to suggest that, in this age of growing power and shrinking distances, the Association has an increasing responsibility in the international field. Many of our Centennial lectures will emphasize the One World-ness of Science. There is no truly American astronomy. The stars and planets disregard national boundaries. I shall therefore speak at the inaugural meeting on "The One World of Stars," showing how much our theories and interpretations depend on our colleagues in all nations. The capture of atomic energy was a contribution from scientists of many countries; modern genetics grew up under a dozen flags; the most recent and most accurate measurement of the distance to the sun involved the coordinating work of scientists from a score of nations.

For the new era, the Association's planners should work out specific programs for spreading our work and influence abroad. Among other ways, it may be accomplished through an arrangement for technical conferences, through assisting and providing travel fellowships, through participating in international explorations, through directly collaborating with similar organizations and with UNESCO.

The advancement of science is the major role of our Association, as indicated by its name. Building our strength during this coming year for the New Advancement, we must prepare to go forward on a world-wide front. This should be done by the central organization as well as through the affiliated societies. And it is not for America alone we must advance—ours must be a world-wide service.

HARLOW SHAPLEY

Retiring President, AAAS

THE year 1848 is remembered for many notable events. Not least among them was the formation of the American Association for the Advancement of Science. Ours is the only scientific society open to all scientists of this country that brings together their varied disciplines into one organization. It has had a notable history and contributed much to scientific progress. The time is past, however, when one group can serve all the needs of biology, chemistry, physics, and the host of other specialized interests that constitute modern science. Each discipline must have its own professional society. In these days of specialization it is particularly important, therefore, to have one inclusive organization that will make it possible for the practitioner of one science to know enough about the others to work intelligently in his own field. It is the peculiar function of the AAAS to bring together men from all fields of science, either through its meetings or through the pages of its journals, for mutual stimulation and for the development of that breadth of vision so necessary for sound scientific work. As it now enters upon the second century of its history, the Association looks forward to the continuation and the extension of its unique service to science.

EDMUND W. SINNOTT

President, AAAS

IN THE homely philosophy of the whimsical optimists, "the first hundred years are the hardest." Whether or not this applies to the American Association for the Advancement of Science, there can at least be a firm determination that the second century will be even more fruitful than the first. But the attainment of the ambition will not be easy, because the tremendous expansion of science and technology has brought in its wake certain centrifugal tendencies.

The Centennial naturally provokes retrospection, introspection, and prospection. And it is fitting that the past and present should be studied as guides for the future. After the inevitable presentation of ponderous profundities at the meeting, the basic philosophies of the Association should be securely anchored and future procedures clearly charted. But works must follow the words.

If science is to function effectively in emancipating from ignorance, fear, and prejudice and in illuminating and enriching life—if science and technology are to help alleviate want and suffering and make living easier and more secure—then scientists have far deeper and wider responsibilities than ever before. The complexities are greater than ever before; hence the need for crystallizing guiding principles out of the complex mass of knowledge is greater than ever before. There must be some unity of purpose in the diversity of scientific and technologic activities.

E. C. STAKMAN

President Elect, AAAS